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6. AUTHOR(S)
Eric L. Schwartz

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
New York University Medical Center
550 First Ave.
New York 10016 N.Y.

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9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
Dr John F. Tangney
AFOSR/NL
Building 410, Duncan Ave, Suite B115
Bolling Air Force Base
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Models for visual attention, based on the representation of an attentional space as a two dimensional map have led to a model of visual attention which has been successfully used in the application of a space-variant active vision system, described below. Also, it has been demonstrated that stereo fusion limits, such as Panum's fusional area, scale in a manner which is determined by the size of a cortical hypercolumn, and the local value of cortical magnification factor. This in turn supports the notion that stereo disparity is computed by a local correlational operator defined on the span of a single pair of ocular dominance columns A generalized image warp technique has been developed, which we term the "protocolumn algorithm", which provides image level models of the mapping of ocular dominance and orientation column systems at the level at the level of primary visual cortex. Finally, many of the ideas developed in this project have reached fruition in the construction of a space-variant active vision system. An initial prototype system has been constructed under hardware support from DARPA, and a number of difficult algorithmic problems in motor control, attention, space-variant image processing, and space-variant pattern classification, have begun to studied.

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P.I.: Eric L. Schwartz

Dept. of Cognitive and Neural Systems
Boston University
111 Cummington Street
Boston MA 02215
eric@thing4.bu.edu

SUMMARY

Models for visual attention, based on the representation of an attentional space as a two dimensional map have led to a model of visual attention which has been successfully used in the application of a space-variant active vision system, described below. Also, it has been demonstrated that stereo fusion limits, such as Panum's fusional area, scale in a manner which is determined by the size of a cortical hypercolumn, and the local value of cortical magnification factor. This in turn supports the notion that stereo disparity is computed by a local correlational operator defined on the span of a single pair of ocular dominance columns A generalized image warp technique has been developed, which we term the "protocolumn algorithm", which provides image level models of the mapping of ocular dominance and orientation column systems at the level at the level of primary visual cortex. Finally, many of the ideas developed in this project have reached fruition in the construction of a space-variant active vision system. An initial prototype system has been constructed under hardware support from DARPA, and a number of difficult algorithmic problems in motor control, attention, space-variant image processing, and space-variant pattern classification, have begun to studied.

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